Englander

Oregon Manufacturing Extension Partnership

Sleep Products Manufacturer Implements Lean

Client Profile:
Englander Sleep Products, Inc., located in Tualatin, Oregon, manufactures sleep products (mattresses and box springs). The company was founded in 1981 and employs 75 people.

Situation:
Englander incurred significant work-in-process and finished goods inventory in their production facility, despite offering a short 3-day delivery time to their customers. This greatly increased transportation, product handling and floor space requirements. The central system driving this was a quilting machine that sewed all layers of top fabric and accompanying layers of foam together into the top and/or bottom panel of a mattress. The quilter was fed continuously (from large rolls of fabric and foam) and cut panels into individual pieces with a single cut across the quilt (like tearing off individual sheets off a roll of paper towels). However, whenever any foam or fabric component fed into the quilter changed to make a different style of panel, a "crop-out" (18"length of quilted panel) had to be removed at the transition point to ensure that the end of the previous panel and beginning of the new panel did not contain the transition point. In order to reduce the amount of crops-outs, the daily production requirements were sorted into an order that minimized foam or fabric changes into the machine, making them out of order for how they were shipped. The net effect of this was that all the mattresses had to be sorted in a large area before they could be placed into the shipping trailer which required significant floor space and handling. It would be much better if the panels could be produced in the actual order of shipping. Englander originally responded to a direct marketing effort from Mark Biederbeck, a consultant with the Oregon Manufacturing Extension Partnership (OMEP), a NIST MEP network affiliate, regarding elminating set-up and reducing batch sizes in a CNC box-spring frame production area. Once again, Englander turned to OMEP for assistance.

Solution:
A current state Value Stream Map was generated by Englander employees after receiving VSM training from OMEP. OMEP then assisted Englander in the development of the future state which called for reducing set-up time at the quilter when changing the composition of the material being quilted. As any change at all required a crop-out, it was determined that whenever a particular panel type was competed, the next group of panels to be quilted would be a combination of what was easiest to change and needed next in order of shipment, even though along with this group panels not immediately needed would be produced as well so as not to make extra crop-outs. In order to accomplish this, extensive logic alterations were required to the software, which was based on Microsoft Access. OMEP brought in an applications programmer to modify the sort criteria for the production requirements sent to the quilter. The above situation ensured that the first "truck stop" of mattresses loaded into the truck would be the first complete stop produced but it also produced panels for other stops. To further enhance the situation, the panels were immediately hemmed or flanged (the next process steps) and then held in a staging area where they were "released" as the stops were

completed and the assembly department was able to consume them.

Results:
* Produced panels in order needed with no extra "crop outs" while some pre-sorting was required (sorting panels is much easier than sorting completed mattresses).
* Reduced floor space requirements by approximately 3,000 sq. ft. This allowed better organization for foam storage which was previously stacked high.
* Matching panels to other components (borders, quilted center panels) was easier.
* An accompanying sticker that was necessary to identify panels allowed BOM information that eliminated "tribal knowledge" for complicated assembly requirements.
* Producing panels in order of shipment "balanced out" the assembly requirements (not all easy or difficult mattresses were produced at once).
* Reduced lead time by approximately one day out of a four day lead time.

Testimonial:
"OMEP continues to provide us with a transformation of our entire facility. The gains have allowed us to realize greater operating efficiency, freed-up floor space for other work, increased capacity and the ability for our supervisors to be more effective. This has been an important part of being more responsive to our customers and completive in the market."

Brad Rehm, Operations Manager